REMARKS

Reconsideration of the present application is respectfully requested.

Claim 1 is objected to for reciting a polynucleotide that encodes a polypeptide of SEQ ID NO: 1. Claim 1 has been rewritten as new claim 64 to correct the SEQ ID NO:. The Examiner's observation is appreciated.

Claims 1-19 and 22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular the Examiner states that one skilled in the art could not predict the structure and function of isolated nucleic acids comprising a polynucleotide amplified from a plant nucleic acid library using primer of SEQ ID NOS: 3 and 4 or 5 and 6, a polynucleotide having 20 contiguous bases of SEQ ID NO: 1, a polynucleotide encoding a plant Cyclin E protein, a plant Cyclin E polynucleotide having at least 70% identity to the entire coding region of SEQ ID NO: 1, or a plant Cyclin E polynucleotide that hybridizes under stringent conditions to SEQ ID NO: 1.

Claim 1 has been rewritten as new claim 64 and deletes reference to isolated nucleic acids comprising a polynucleotide amplified from a plant nucleic acid library using primer of SEQ ID NOS: 3 and 4 or 5 and 6, a polynucleotide having 20 contiguous bases of SEQ ID NO: 1, a polynucleotide encoding a plant Cyclin E protein, or a plant Cyclin E polynucleotide that hybridizes under stringent conditions to SEQ ID NO: 1. Claim 64 requires a CycE nucleic acid which is defined in the specification on page 6, lines 3-6 as encoding a polypeptide which binds to Cdk2, has a cyclin box, and contains the conserved motif TTPXS, thus providing additional function and structure to the claim requirements.

The Examiner further states that the physical features of the claimed isolated nucleic acids and transgenic cells, plants, and seeds cannot be ascertained in the absence of information about the functional activities of these nucleic acids. The

Examiner also states that the specification does not disclose the effect of incorporating the claimed isolated nucleic acids into the genome of a cell or plant.

The function, utility, and effect of incorporating CycE nucleic acids is disclosed on page 8, line 30 to page 9, line 24 and page 50 lines 15-27. Expression of CycE nucleic acids is expected to improve transformation efficiency. As noted above Claim 64 requires a CycE nucleic acid encoding a polypeptide which binds to Cdk2, has a cyclin box, and contains the conserved motif TTPXS.

Further a 1.132 Declaration is submitted to provide evidence that SEQ ID NO: 1 exhibits the structure and function of a CycE polynucleotide.

The Examiner states that the specification suggests a possible relationship between the SEQ ID NO: 1 and type E cyclins and further states that the homology of predicted amino acid sequence to known proteins does not always predict the function of the homologous sequences.

The applicants have relied on more than homology for the identification of SEQ ID NO: 1 as a CycE polynucleotide. As discussed above the CycE polypeptide expressed by the CycE polynucleotide is clearly defined by function, sequence identity, and conserved regions. Claim 64 requires a CycE nucleic acid encoding a polypeptide which binds to Cdk2, has a cyclin box, and contains the conserved motif TTPXS.

As noted above a 1.132 Declaration is submitted to provide further evidence that SEQ ID NO: 1 exhibits the structure and function of a CycE polynucleotide.

Claims 1-19, 22-25, and 27-53 are rejected under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner states that the specification does not provide any definitive evidence that SEQ ID NO: 1 or a sequence comprising SEQ ID NO: 1 encode a functional protein, such as stimulating cells to progress from the G1 phase to the S

phase. The Examiner states that guidance for making and using the claimed invention is necessary for enablement because the homology of known proteins does not always predict the function of the homologous sequences.

As noted above a 1.132 Declaration is submitted to provide further evidence that SEQ ID NO: 1 exhibits the structure and function of a CycE polynucleotide. Also noted above the function, utility, and effect of incorporating CycE nucleic acids is disclosed on page 8, line 30 to page 9, line 24 and page 50 lines 15-27. Still further claim 64 is directed to CycE polynucleotides and does not include other polynucleotides. As noted above Claim 64 requires a CycE nucleic acid which encodes a polypeptide which binds to Cdk2, has a cyclin box, and contains the conserved motif TTPXS.

Claims 1-19 and 22 are rejected under 35 USC 101 because the claimed invention is not supported by a specific and substantial utility.

As noted above the function, utility and effect of incorporating CycE nucleic acids is disclosed on page 8, line 30 to page 9, line 24 and page 50 lines 15-27. For example, modulating CycE increases the G1 to S transition and is expected to increase transformation efficiency.

Claims 18 and 19 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter.

Claim 18 has been amended to require an expression cassette. Claim 19 has been cancelled.

Claims 1-12 are rejected under 35 USC 102(b) as being anticipated by Kende et al.

The claims have been amended to delete reference to 20 contiguous bases of SEQ ID NO: 1, a polynucleotide encoding a plant cyclin E protein, and a plant Cyclin E polynucleotide that would hybridize under stringent conditions to SEQ ID NO: 1.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

In view of the above comments and amendments, reconsideration and allowance of the remaining claims in the application is respectfully requested.

Respectfully submitted,

Marianne H. Michel
Attorney for Applicant(s)
Registration No. 35,286

PIONEER HI-BRED INTERNATIONAL, INC.
Corporate Intellectual Property
7100 N.W. 62nd Avenue
P.O. Box 1000
Johnston, Iowa 50131-1000
Phone: (515) 334-4467
Facsimile: (515) 334-6883

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claims 1, 19, 20, 21, 26, and 54-63 have been cancelled.

Claims 2, 4, 6-11, 13, 18, 22 and 23 have been amended as follows:

2. (Amended) The isolated nucleic acid of claim [1] 64, wherein the polynucleotide is from a monocot.

4. (Amended) The isolated nucleic acid of claim [1] 64, wherein the polynucleotide is from a dicot.

6. (Amended) The isolated nucleic acid of claim [1] 64, wherein the polynucleotide has the sequence of SEQ ID NO: 1.

7. (Amended) The isolated nucleic acid of claim [1] 64, wherein the polynucleotide is DNA.

8. (Amended) The isolated nucleic acid of claim [1] 64, wherein the polynucleotide is RNA.

9. (Amended) The isolated nucleic acid of claim [1] 64 adducted to a second nucleic acid sequence encoding a DNA-binding domain.

10. (Amended) A vector comprising at least one nucleic acid of claim [1] 64.

11. (Amended) A recombinant expression cassette comprising a nucleic acid of claim [1] 64.

13. (Amended) A non-human host cell containing the recombinant expression cassette of claim 11.

18. (Amended) A seed [from the plant of claim 16] comprising the expression cassette of claim 11.

22. (Amended) A ribonucleic acid sequence encoding [the protein of claim 20] a protein having SEQ ID NO:2.

23. (Amended) A method of modulating the level of CycE protein in a plant cell, comprising:
    (a) transforming a plant cell with a recombinant expression cassette of claim 11 [comprising a CycE polynucleotide operably linked to a promoter];
    (b) growing the plant cell under cell-growing conditions for a time sufficient to induce expression of the polynucleotide sufficient to modulate CycE protein in the cell.

Claim 64 has been added as follows:

64. (New) An isolated Cyclin E nucleic acid comprising a member selected from the group consisting of:
    (a) a polynucleotide that encodes a polypeptide of SEQ ID NO: 2;
    (b) a plant Cyclin E polynucleotide having at least 70% identity to the entire coding region of SEQ ID NO: 1, wherein the % identity is

determined by GCG/bestfit GAP 10 program using a gap creation penalty of 50 and a gap extension penalty of 3;

(c) a polynucleotide having the sequence set forth in SEQ ID NO: 1; and

(d) a polynucleotide complementary to a polynucleotide of (a) through (c).